Amendments to the Claims:

The listing of claims will replace all prior versions and listings of claims in the application.

Please cancel claims 23, 25, 26, 28 to 38, 40 to 42, 44 to 48 and 56 to 67 without prejudice or disclaimer of the subject matter claimed therein.

Please add new claims 68 to 94 as follows:

Listing of Claims:

Claims 1 – 67 (canceled)

Claim 68 (new): An isolated nucleic acid that encodes an *Arabidopsis thaliana* nuclear base transporter and hybridizes to the complement of SEQ ID NO: 1 or 2 under stringent conditions in a solution comprising 25% formamide, 5X SSPE, 0.1% SDS, 5X Denhardt and 50 µg herring-sperm DNA for about 20 hours at 37°C, followed by washing in 2X SSC and 0.1% SDS at 42°C.

Claim 69 (new): The isolated nucleic acid of claim 68, wherein the nucleic acid encodes the amino acid sequence as set forth in SEQ ID NO: 8.

Claim 70 (new): The nucleic acid of claim 69, wherein the nucleic acid comprises the nucleic acid sequence as set forth in SEQ ID NO: 1.

Claim 71 (new): The nucleic acid of claim 68, wherein the nucleic acid comprises the nucleic acid sequence as set forth in SEQ ID NO: 2.

Claim 72 (new): The nucleic acid of claim 68, wherein the nucleic acid is a DNA molecule.

Claim 73 (new): A construct comprising the nucleic acid of claim 68.

Claim 74 (new): The construct of claim 73, wherein said construct is a plasmid.

Claim 75 (new): A host cell comprising the construct of claim 73.

Claim 76 (new): The host cell of claim 75, wherein the host cell is selected from the group consisting of bacteria, yeast cells, mammalian cells and plant cells.

Claim 77 (new): A transgenic plant, transgenic plant part, or seed of the transgenic plant that comprises a nucleic acid of claim 68.

Claim 78 (new): The transgenic plant, transgenic plant part, or seed of claim 77, wherein said nucleic acid or fragment is integrated into a site on the genome that does not correspond to its natural position.

Claim 79 (new): A process for producing a transgenic plant comprising the following steps:

A. inserting the nucleic acid of claim 68 into a plant cell to make a transformed plant cell; and

B. regenerating a plant from the transformed plant cell.

Claim 80 (new): A process for influencing the nuclear base transporter properties of a plant, part of a plant or of seeds, comprising inserting into a plant cell or plant the nucleic acid of claim 68.

Claim 81 (new): A method for the expression of a nuclear base transporter in a prokaryotic or eukaryotic cell, comprising transfecting said cell with the construct of claim 73 such that said nucleic acid is expressed.

Claim 82 (new): The transgenic plant, transgenic plant part, or seed of claim 77, wherein said nucleic acid sequence is under the control of an element regulating expression.

Claim 83 (new): A plant cell produced by the process of claim 80.

Claim 84 (new): A plant produced by the process of claim 80.

Claim 85 (new): A method of regenerating a plant comprising growing a plant from the plant cell of claim 83.

Claim 86 (new): The nucleic acid of claim 68, wherein said nucleic acid complements a yeast cell that is deficient in *fcy2* expression.

Claim 87 (new): The nucleic acid of claim 68, wherein said nuclear base transporter transports at least one compound selected from the group consisting of nuclear bases, nucleosides, cytokinins and alkaloids.

Claim 88 (new): The nucleic acid of claim 87, wherein said nuclear bases are selected from the group consisting of adenine, cytosine and hypoxanthine.

Claim 89 (new): The nucleic acid of claim 87, wherein said nucleosides are selected from the group consisting of adenosine and cytidine.

Claim 90 (new): The nucleic acid of claim 87, wherein said cytokinins are selected from the group consisting of zeatine and kinetine.

Claim 91 (new): An isolated nucleic acid that is complementary to the nucleic acid of claim 68.

Claim 92 (new): A construct comprising the nucleic acid of claim 91.

Claim 93 (new): The construct of claim 92, wherein said construct is a plasmid.

Claim 94 (new): A method for inhibiting the expression of an endogenous nuclear base transporter in a prokaryotic or eukaryotic cell comprising inserting into said cell the nucleic acid of claim 91, wherein said expression inhibits the expression of an endogenous nuclear base transporter.